REST API & Technical Documentation

Draft Version 3.1 (10th Feb 2015)

Document Control

Version	Date	Changes	Author
1.0	03/04/2013	First release	Paul Gaston / Jay Zelos
2.0	01/07/2014	Revised Introduction, API, SMS	Jay Zelos
3.0	05/02/2014	Corrected status codes and added email section. Removed sections containing future features.	Jay Zelos
3.1	10/02/2015	Removed unused dial command and moved prompt set from voice command to a predefined setting in the installation.	Jay Zelos

Table of Contents

Introduction

This document acts as a guide for software developers to describe how they may integrate the VerIDial authentication system into their applications and web based systems to provide a second layer of security.

Typical authentication mechanisms work by using a password ("something you know") alongside a username, this is called single-factor authentication. Two-factor authentication adds to this by using either "something you own" or "something you are", whilst three-factor puts everything together. "Something you own" is usually a token or physical object in your possession whilst "something you are" is typically represented by finger print recognition or retina scanning.

The VerIDial system works by using a phone linked to the person being authenticated. This provides the "something you own" in the typical two-factor authentication scenario. It's also possible to use VerIDial on its own instead of a password, although this is only single-factor it's typically more secure due to the weakness of the average password. (Dinei & Cormac, 2007)

When using VerIDial the person attempting to authenticate is required to enter a PIN number that is read out to them over a landline or mobile, or sent as a text to a mobile.

For applications where a lower level of security is required or other methods are not possible, the Pin can be sent to an email address.

There are two methods that can be used to integrate VerIDial.

Plugin

The simplest way to get VerIDial and two-factor authentication up and running is by using our HTML iframe plug-in that can be embedded into any website[1].

REST API

Rather than using a provided plug-in the VerIDial system can be accessed directly over HTTPS via the REST API. This uses basic authentication[2] and provides methods to setup a call, SMS and email request, request the status of an ongoing request and to verify a PIN.

[1] Requires REST API call to authenticate and obtain token prior to displaying iframe.
[2] https://en.wikipedia.org/wiki/Basic_access_authentication & https://tools.ietf.org/html/rfc2617

iFrame Plugin

Using the iframe plugin

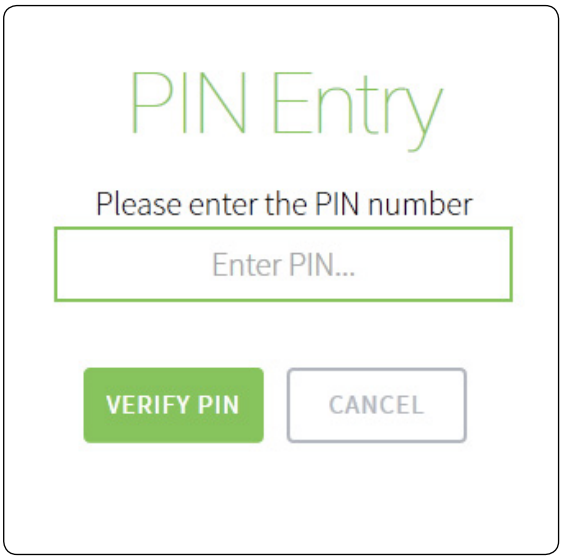

Figure 1 – Example of a page using the plugin

If you wish to use our iframe based plug in with your application, there is a simple sequence of events to follow.

Step 1 – Preconfigure the request

From within your application use the REST API with your VerIDial credentials to initiate an IVR request to the appropriate API method: voice, sms or email.

The request will return a token that you should pass to the plug in. This reference number can be used once only before expiring.

This is also the point at which you are billed for the verification attempt.

Step 2 – Embed the IVR iframe plugin

Within your application reference the plug in as you would a normal iframe but passing the token from step 1 plus your own success and failure page URLs.

```
<iframe width="400px" height="400px" src=" https://plugin.veridial.co.uk/?token=6884E7C7-690C-41E6-8551-5FFB202BDF75&pinSuccess=http://mywebsite.com/PinSuccess.aspx&pinFailure= http://mywebsite.com/PinFailure.aspx&color=fff&background=000"></iframe>
```

You may change the colour of the VerIDial plug-in by passing a foreground colour (used for text) and a background colour. Colour values should be specified in hexadecimal RGB format as if they were embedded inside a style sheet sans the hash symbol.

The iframe will auto update its visible status to the following values in order to provide user feedback. These correspond to a subset of the full status list.

- Queued for Dialling
- Dialling
- Playing Instruction
- Playing Pin
- Hung Up
- Bad Pin

Step 3 – Preconfigure the request

From within your application use the REST API with your VerIDial credentials to initiate an IVR request to the appropriate API method: voice, sms or email.

Success

When the user has successfully verified the pin number, they will be redirected back to your success page. You should double check the status by using the REST API status command and the token.

Failure

If the verification fails for any reason (e.g. the user cancelled the request or the number was engaged) the plug in will redirect the user to your failure page. You may check the failure reason by using the REST API status command and the token.
If you wish to try again with a different number or email address you must start from step 1 and you will be billed for each attempt.

REST API

Response format

The REST API supports both JSON and XML responses and will return data in the same format used to send to it. Use the HTTP request headers “application/json” for JSON and “text/xml” for XML.

Request Authentication

The HTTP request header to create each request must contain your API installation id and password. This is done via the basic authorization standard used by many other services and supported natively by most browsers (for testing and development). A header line should be added to the request as per the below.

1. The installation id and password are combined in a single string separated by a colon “installation id: password”.

2. The string is then base 64 encoded according to the RFC2045-MIME variant without the character limit.

3. The string is appending to a line containing “Authorization Basic“ after the space and added to the request.

Example:

```
Authorization Basic dXNlcm5hbWU6cGFzc3dvcmQ=
```

If a request fails authentication for any reason, a HTTP 401 Not Authorized response will be returned containing a WWW-Authenticate HTTP header. This will cause most browsers to request a username and password, useful for development and testing.

Some methods may be accessed by providing the request token, when this is the case, the authentication header is not required and we would discourage you from adding it.

Errors

Whenever a request fails because incorrect parameters were passed or a request has expired. A HTTP 400 Bad Request will be returned with details of the error.

Example JSON response:

```
{
StatusDescription = ‘The number is not recognised as a valid phone number.’,
StatusCode = 1003
}
```

Dates

To avoid confusion with different date and time formats in use in different countries the VerIDial REST API always returns ISO 8601 compliant dates.

API methods

https://api.verdial.co.uk/Sms
HTTP Type: POST
Requires Authentication Header: Yes

Will creates a new SMS based request. The system will bill your account, schedule an SMS for immediate sending and return a globally unique token that can be used in subsequent API calls to retrieve information regarding this request such as the status and to verify an entered PIN.

Requests

Field Name	Type	M or O	Notes
Number	String	Mandatory	The telephone number of the mobile to text.

Response

Field Name	Type	Notes
Token	Guid	A Globally unique identifier for this request.

https://api.verdial.co.uk/Email
HTTP Type: POST
Requires Authentication Header: Yes

Will creates a new Email based request. The system will bill your account, schedule an email for immediate sending and return a globally unique token that can be used in subsequent API calls to retrieve information regarding this request such as the status and to verify an entered PIN.

Requests

Field Name	Type	M or O	Notes
EmailAddress	String	Mandatory	The telephone number of the mobile to text.

Response

Field Name	Type	Notes
Token	Guid	A Globally unique identifier for this request.

https://api.verdial.co.uk/Voice
HTTP Type: POST
Requires Authentication Header: Yes

Will creates a new IVR based request. The system will bill your account, prepare a voice dial and return a globally unique token that can be used in subsequent API calls to retrieve information regarding this request such as the status and to verify an entered PIN. The system will start dialling immediately once a successfully request is made.

Requests

Field Name	Type	M or O	Notes
Number	String	Mandatory	The telephone number of the mobile to text.
Prompts	String	Optional	The name of a particular set of prompts to use. (pre-recorded voices)

Response

Field Name	Type	Notes
Token	Guid	A Globally unique identifier for this request.

https://api.verdial.co.uk/Status

HTTP Type: POST or GET

Requires Authentication Header: No

This method uses the token to return the status of a request.

Requests

Field Name	Type	M or O	Notes
Token	Guid	Mandatory	The globally unique identifier for this request.

Response

Field Name	Type	Notes
StatusCode	Int32	A code that identifies where in the request process the specified request currently is. Codes will vary according to the verification method being used.
StatusDescription	String	A textual description of the current status of this request.

https://api.verdial.co.uk/Verify

HTTP Type: POST

Requires Authentication Header: No

This method uses the token to verify a PIN number.

Requests

Field Name	Type	M or O	Notes
Token	Guid	Mandatory	The globally unique identifier for this request.
Pin	String	Mandatory	The PIN number that you wish to compare with the PIN sent to the user via IVR or SMS.

Response

Field Name	Type	Notes
StatusCode	Int32	A code that identifies where in the request process the specified request currently is. Codes will vary according to the verification method being used.
StatusDescription	String	A textual description of the current status of this request.

https://api.verdial.co.uk/Cancel

HTTP Type: POST

Requires Authentication Header: No

This method uses the token to cancel a pending request. This will not recall the text or notification if using the app but will terminate any ongoing call as well as prevent any future verification attempts.

Requests

Field Name	Type	M or O	Notes
Token	String	Mandatory	The globally unique identifier for this request.

Response

Field Name	Type	Notes
StatusCode	Int32	A code that identifies where in the request process the specified request currently is. The code should state that the request has been cancelled.
StatusDescription	String	A textual description of the current status of this request.

https://api.verdial.co.uk/Balance

HTTP Type: GET

Requires Authentication Header: Yes

This method returns your current balance of credit.

Response

Field Name	Type	Notes
Balance	Int32	The remaining balance of credit in the account specified by the username passed in the authentication header.

https://api.verdial.co.uk/Report

HTTP Type: GET

Requires Authentication Header: Yes

This method returns a summary of your requests as a list. If the optional parameters to filter by date are not present, the system will automatically send the last 20 requests. There is a restriction on the number of records returned; the system will not return more than 1000 requests in a single response.

Requests

Field Name	Type	M or O	Notes
StartDate	DateTime	Optional	A start date to filter from
EndDate	DateTime	Optional	An end date to filter to

Response

Field Name	Type	Notes
RequestDate	DateTime	The date and time the request was made.
Number	String	The number authenticated.
StatusCode	Int32	A code that identifies where in the request process the specified request currently is. The code should state that the request has been cancelled.
StatusDescription	String	A textual description of the current status of this request.
Method	String	Voice, SMS or APP.
Fee	Int32	The fee for this request.

Appendix A - Status & Error Codes

Status Code	Old Status Code	IVR, Email or SMS	Name	Description
N/A	0	ALL	Success	This is not an error but an indication the request succeeded.
N/A	-1 or -3		-	The API call appears to come from an unauthorised IP address.
HTTP 403	-2	ALL	Bad Credentials	Your username and/or password are incorrect.
1001	-4	ALL	Unknown	Unknown error, contact Liquid11 in the unlikely event you receive this error.
1002	-5	ALL	Bad Token	The token supplied is not recognised or invalid.
1003	-6 or -7	ALL	Bad Number	The number is not recognised as a valid phone number.
1004		ALL	Insufficient Credit	The installation has insufficient credit to service the request, please contact support to top up.
1005	L or -9		Request Rejected	The request has been rejected. The correct pin was not entered and no more attempts remain.
1006	A (65)	ALL	Request Verified	The request has been successfully verified.
1007	X	ALL	Request Cancelled	The request has been cancelled.
1008		ALL	Request Expired	The request has expired due to the length of time taken to respond.
1009		ALL	Triggered Rate Limiter	There have been too many attempts to this number or email. Please wait and try again later.
2001		Voice	Call Setup	A voice request has been created.
2002	K or -8	Voice	Call Declined	The person answering the call rejected the request.
2009	I	Voice	Playing PIN	The PIN number is now being read out.
N/A	N	Voice	No Response	The call was answered but no key presses were detected.
2010	H	Voice	Caller Hung-up	The call terminated successfully.
2006	E	Voice	Line Engaged	The line was engaged when dialling.
2004	F	Voice	Call Failed	The call could not be connected.
2007	R	Voice	No Answer	The call was successfully placed, but no one answered.
2003	Q	Voice	Queued for Dial	The request is queued ready for dealing
2008	B or T	Voice	Playing Instructions	The instructions are now being read out.
2005		Voice	Dialling	The system is now dialling.
N/A	P	Voice	Ringing	The phone is currently ringing.
N/A	W		Waiting	The user requested a waiting period.
3001		SMS	SMS Sent	A text containing a valid pin has been sent to the recipient's network provider.
3002		SMS	SMS Failed	We could not send a text to the device at this time.
3003		SMS	Not a Mobile	The number requested is not a mobile number.
5001		Email	Email Sent	An email containing a valid pin has been sent.
5002		Email	Email Failed	We could not send an Email at this time.
5003		Email	Bad Email	The email is not recognised as a valid email address.